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RELOCATION INSTRUCTIONS

GOVERNMENT DOCUMENTS
COLLECTION

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federal emergency
management agency



FITCHBURG-LEOMINSTER RISK AREA DRAFT

- **WHO WILL BE EVACUATED**
- **WHAT TO DO WHEN YOU ARRIVE**
- **WHERE YOU WILL BE RELOCATED**
- **FACTS ABOUT A NUCLEAR EXPLOSION**
- **HOW TO GET THERE**
- **WHAT TO TAKE**
- **HOW TO PROTECT YOU & YOUR FAMILY**

IMPORTANT NOTICE

This information is being published at the request of government officials of the State of Massachusetts because a serious international crisis exists. If the situation becomes more serious, it may be necessary for the citizens of the Fitchburg-Leominster, Massachusetts, metropolitan area to move to a safer location.

The decision to evacuate the area will be carefully considered. Evacuation will be directed only if there appears to be a real possibility of a nuclear attack. In such a case, evacuation may be the key to survival for you and your family.

You will be officially notified by radio and TV if evacuation is directed. Stay tuned to your local stations. In the meantime, you are urged to prepare for the possibility that you may have to leave the area for a safer location.

It is important for you to read the following information very carefully. It contains instructions and directions that you will need during this crisis period. Make sure that you and your family understand all these instructions.

This information is your key to survival
READ IT.....KEEP IT

WHY YOU SHOULD EVACUATE

The greater Fitchburg-Leominster metropolitan area could be a potential target if the United States is attacked. The area where the greatest danger may exist is shown on the map below. To protect the people living in this area, plans have been made to relocate them to nearby areas which are considered to be safer from direct attack.

Those living in this risk area who do not leave accordingly to instructions will be subject to strictly enforced curfews. Movement within the risk area will be severely restricted to protect the property of those who have evacuated. In addition, most facilities or services cannot be provided in the risk area during the evacuation period. In general, food and goods will be used to supply the evacuated population in the reception areas.

Should an attack occur, the best existing shelter within the risk area will be reserved for key workers who will be working in essential industries, and for hospitalized or institutionalized people who cannot be evacuated.

WHO WILL GO

When OFFICIAL NOTIFICATION is given, all those living in the vicinity of metropolitan Fitchburg-Leominster who are in the risk area shown on the map below, will be directed to evacuate* to reception areas in nearby counties -- that is, from a place of possible danger to a place of safety.

You can determine whether you should evacuate by locating where you live on the map. If it is within the risk area, you should be prepared to leave if notification is given. Two days or possibly more should be available to complete the evacuation. However, you should prepare now so that you can get ready to leave in an orderly manner, if notification of evacuation is given.

* Shift workers may be told to stay on their job until the end of their shift.

IF YOU ARE IN A HOSPITAL...

Most hospital patients will be evacuated. However, if it is impossible for you to be moved because of special care requirements, you will be cared for during the evacuation period. Similar consideration will be given to those residing in other institutions. Shelter and care will be provided in case of an imminent attack.

RISK AREA MAP

CHECK TO SEE IF YOU LIVE IN RISK AREA



Those communities which have not been designated Risk or Host Communities in this pamphlet will remain at home using home basement and public shelters for protection.

**IF YOU LIVE IN THIS AREA
SEE ROUTE AND DESTINATION CHART**

WHERE TO GO

• If You Have A Vacation Cabin, Relatives, Friends ...

As the crisis intensifies and evacuation appears imminent, if you have a vacation cabin or friends or relatives outside the risk area, but within a reasonable distance, GO THERE as soon as possible to get to the location of your choice.

• If You Do Not Have A Definite Location To Go To ...

You should proceed to the nearest reception area indicated for you on the route and destination chart. These assignments are based on the city or town in which you reside.

• If You Are A Key Worker ...

If you have been designated by your employer as a key worker in an essential industry, you will be expected to evacuate with your family, in a reserved nearby reception area. You will not be expected to stay in the Fitchburg-Leominster metropolitan area, but will commute daily to work from your assigned reception area. Protection will be provided for you while in the Fitchburg-Leominster metropolitan area, and you will be able to join your family after work.

WHAT TO DO WHEN YOU ARRIVE

Your assignment to a host reception community is explained in detail on section entitled "How to Determine Your Assigned Route and Destination." When you reach your assigned or host reception community, follow your signs at off-ramps or along the routes which will direct you to the temporary reception or congregate care centers.

At the centers, you will register yourself and your family. Local officials will assign temporary lodging and you will be given further instructions.

Lodging in Public Buildings ...

If you are assigned to a public buildings, such as, a school, church, or other temporary lodging center, do everything you can to help maintain order and sanitary living conditions. Elect a leader and form working groups to help local officials and volunteers with such tasks as:

- * Cooking and feeding services
- * Providing water supply
- * Cleaning up trash and garbage
- * Maintaining order
- * Assuring quiet during sleeping hours
- * Organizing recreation and religious activities
- * Arranging medical care for the sick and assisting the handicapped

Lodging in a Private Home ...

If you are invited into a private home, be considerate and do your share to help your host. Remember that you are a guest and that your host has volunteered to share his home with you. You will be expected to treat his home and property with respect.

Use of Private Cars ...

Do not count on using your car in the host reception area except for storing your belongings. Evacuees' cars may be held in parking areas by local authorities, and gasoline will be scarce in any case.

HOW TO KEEP INFORMED

Listen to the radio for information and advice from national, State, and local officials. You will be told when you should return home. DO NOT RETURN HOME BEFORE YOU ARE ADVISED TO DO SO. It is impossible to predict how long you will have to stay in the host reception area. It could be only a few days or could last for a week or more.

If a nuclear attack should occur and the Emergency Broadcasting System (EBS) is in operation, a number of radio broadcast stations will remain on the air to provide emergency information. All other radio stations will stop broadcasting. Those emergency stations remaining on the air will provide you with information and instructions that you will need.

WHAT TO TAKE

You should prepare to take only those things which are deemed necessary for a stay of a week or more. See "Survival Supplies." This check list includes items you will need for your stay in the host reception area. Do not take all your favorite belongings.

All items on the checklist should be taken if you are going to use your own car for transportation. If you do not have a car and will be using another form of transportation, take only those items which can be carried in a suitcase such as those marked with an asterisk on the checklist.

PETS

No arrangements have been made to house pets in the reception area. Therefore, if you take your pet with you, it will probably be confined to your car and you will be responsible for its care. If you elect to leave your pets behind, be sure they are confined in a sheltered area with an adequate supply of food and water. Above all, do not turn your pet loose to fend for itself while you are gone.

PREPARE!

Here are some things you can do right now that will better prepare you and your family to survive and recover if a nuclear attack should occur.

1. Check to see if you live in the risk area.
2. Look up your host reception area assignment and familiarize yourself with the highway route assigned to you.
3. Go over the checklist of things to take with you. If you will need a prescription medicine or special food, check to see if you have an ample supply.
4. Collect all of your valuable papers and put them in one place, preferably wrapped in plastic in a metal container (tool box, fishing tackle box, etc.).
5. Check your home for security. See that all locks are secure. Store valuables in a safe place.

6. If you will use your car, be sure you have enough gas.
7. Be sure to take tools--especially SHOVELS, PICKS, HAMMERS. These will be essential in improvising a fallout shelter.
8. Stay tuned to your local TV radio station for instructions. They will broadcast the notice to evacuate, if directed by government officials.
9. Read this supplement carefully and discuss it with your family. If you do not understand any of these directions, CALL

Ashburnham - 827-4726
Ashby - 386-7780
Berlin - 838-2984
Bolton - 779-2701
Clinton - 365-6724
Fitchburg - 342-8306
Lancaster - 365-5614
Leominster - 534-8306
Lunenburg - 582-6606
Westminster - 874-2364

SURVIVAL SUPPLIES

CLOTHING AND BEDDING

- ☐ ★ work gloves
- ☐ ★ work clothes
- ☐ ★ extra underclothing
- ☐ ★ outerwear (depending on season)
- ☐ ★ rain garment
- ☐ ★ extra pair of shoes
- ☐ ★ extra socks or stockings
- ☐ sleeping bags and/or
- ☐ blankets and sheets

FOOD AND UTENSILS

- ☐ Take all the food you can carry (particularly canned or dried food requiring little preparation)
- ☐ water
- ☐ thermos jug or plastic bottles
- ☐ bottle and can opener
- ☐ eating utensils
- ☐ plastic or paper plates, cups, and napkins
- ☐ plastic and paper bags
- ☐ ★ candles and matches
- ☐ plastic drop cloth

PERSONAL, SAFETY, SANITATION, AND MEDICAL SUPPLIES

- ☐ ★ battery operated (transistor)
- ☐ ★ radios, extra batteries
- ☐ ★ flashlight, extra batteries
- ☐ ★ soap
- ☐ ★ toothbrush & toothpaste
- ☐ ★ shaving articles
- ☐ ★ sanitary napkins
- ☐ ★ detergent
- ☐ ★ towels and washcloths
- ☐ toilet paper
- ☐ emergency toilet
- ☐ carbide can
- ☐ newspapers
- ☐ first aid kit
- ☐ ★ special medication (insulin, heart tablets, or other)

TOOLS FOR CONSTRUCTING A FALLOUT SHELTER

- ☐ pick ax
- ☐ shovel
- ☐ saw
- ☐ hammer
- ☐ ax
- ☐ crowbar
- ☐ nails and screws
- ☐ screw driver
- ☐ wrench

IMPORTANT PAPERS

- ☐ ★ Social Security card
- ☐ ★ deeds
- ☐ ★ insurance policies
- ☐ ★ stocks and bonds
- ☐ ★ will
- ☐ ★ savings account books
- ☐ ★ credit cards, checks, and currency

BABY SUPPLIES

- ☐ ★ diapers
- ☐ ★ bottles and nipples
- ☐ ★ milk or formula
- ☐ ★ powder
- ☐ ★ rubber sheeting, etc.

DO NOT TAKE

- ☐ FIREARMS (Guns of any kind)
- ☐ NARCOTICS
- ☐ ALCOHOLIC BEVERAGES

*Items to take if you use Public Transportation

FACTS ABOUT A NUCLEAR EXPLOSION

If you are in an unprotected area near where a nuclear weapon explodes, you could not survive the effects of the blast and heat generated by the explosion. After the explosion, the major danger is from radiation sickness caused by radioactive fallout. This fallout

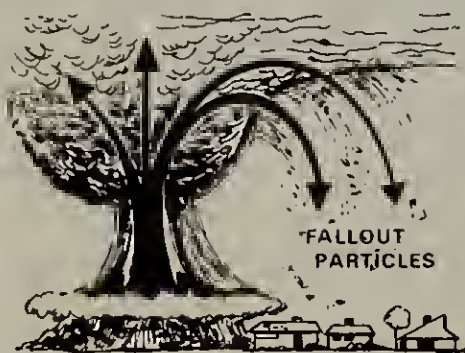
can endanger the life and health of people outside the high risk area. However, protective measures can be taken to safeguard you and your family from the effects of nuclear fallout.

This section describes what fallout is and how to protect yourself against its effects.

WHAT CAUSES FALLOUT...

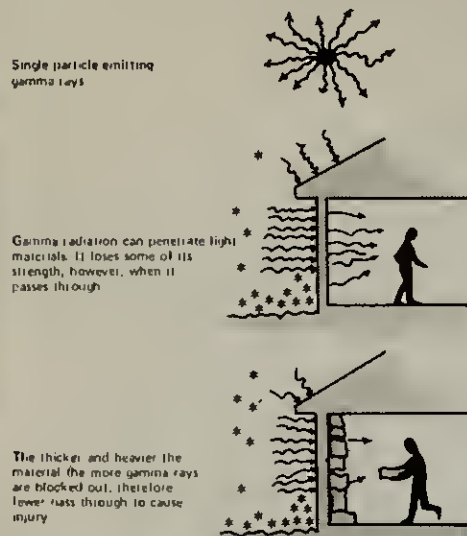
When a nuclear weapon explodes, great quantities of earth and other debris are sucked up into a nuclear cloud. The bits and particles of earth are mixed with the radioactive materials produced by the explosion and become "radioactive."

Within a short time, these fallout particles drift back to earth. Carried by the wind, they can spread over a large area far from the explosion site.



The particles may look like fine grains of sand, but the gamma rays they give off cannot be seen. (Special instruments are required to detect the rays and measure their intensity.) The particles can be swept, brushed, or washed off.

The gamma rays can pass through light materials. A considerable thickness of heavy material is required to stop the penetration of these rays.



The important points to remember about the danger of fallout are:

- You cannot see the gamma rays given off by fallout particles.
- Gamma radiation can penetrate light materials, therefore, heavy clothing alone will not protect you from these rays. If fallout particles should get on your skin, they should be brushed off to avoid skin burns.
- Radiation is more dangerous to very young, very old or sick people than to those in good health.
- A large dose of radiation received in a short period is more damaging than smaller doses received over a longer period.
- Radiation sickness is not contagious and cannot be passed from one person to another.

HOW TO PROTECT AGAINST FALLOUT

Radiation loses its strength:

- With the passage of time
- As it passes through materials
- As the distance from the particle is increased

The best protection is to surround yourself with heavy materials. A fallout shelter will give you this kind of protection.

A fallout shelter does not need to be a special type of building. Any building will provide some level of protection. If the walls and roof are thick or heavy enough to absorb many of the rays given off by the particles outside, then better protection can be obtained. Even caves and mines can provide protection.

The key fact to remember is the farther you are from radioactive fallout particles, the safer you are from radiation. For example, you have more protection in a basement than on the top floor of a building. Likewise, there is more protection in an inner corridor of an above-grade structure than near an outside wall.

WHO WILL NEED FALLOUT PROTECTION

There is no way of predicting in advance where or how soon fallout will settle to the ground. This depends on the weather and on the direction and speed of the winds.

Areas close to a nuclear explosion might receive fallout within 20 or 30 minutes. Depending on the winds, it may take 5 to 10 hours for particles to drift down on communities 100 miles or more from the explosion.

The heavier particles giving off the most intense radiation will fall first. The lighter particles falling later will have lost much of the radiation high in the atmosphere. The first 24 hours after the fallout begins to settle are the most dangerous. The radiation from the particles loses its strength over time. The longer you are in a shelter, the lower the outside radiation levels will be when you emerge.



After a nuclear attack, dangerous levels of fallout COULD occur any place in the United States. Everyone, therefore, must have protection in case fallout occurs in his community.

WHY FALLOUT IS DANGEROUS...

The gamma rays given off by radioactive fallout particles can cause physical and chemical changes in the cells of the body, causing radiation sickness. No special clothing can protect you from the rays and there is no known drug or chemical that can prevent radiation from damaging the cells of the body. Large doses of radiation will cause death. But if you receive small or medium doses, the body will repair itself and you will get well.

The amount of gamma radiation that you can tolerate depends on a number of factors. The effects of radiation are more severe in very young or very old persons and those not in good health. Also, a single large dose received in a short period of time is more damaging than the same dose received over a longer period. People exposed to radiation DO NOT BECOME RADIOACTIVE and consequently are not dangerous to other people. Radiation sickness is NOT contagious and one person cannot infect another.

HOW TO PROVIDE FALLOUT SHELTER

Many larger buildings have been designated as public fallout shelters. They are marked by signs like this:



However, most public shelters are in larger cities and may be needed by essential workers or those who cannot be relocated. Those counties which serve as host areas usually do not have enough shelters for their own residents. Consequently, it will be necessary for many residents of host counties—AND FOR MOST CITY EVACUEES—to upgrade the protection in the building they are to stay in or to improvise their own fallout protection.

Both the residents of the host areas and the city evacuees will have to **WORK HARD FOR A DAY OR MORE** to construct improvised shelters to protect against fallout. In this case, radiation protection would be "cheap as dirt." Upgrading existing structures by piling earth outside them can be done by adding an average of one cubic yard of earth for each 10 square feet of shelter space to be developed (more for some buildings, less for others). Moving a cubic yard of earth is not easy—it's about 80 to 100 buckets full—but can be done if everyone works for their survival.

Shelter in host areas can be found in the following:

- Buildings which have been identified in the National Shelter Survey and marked with a shelter sign.
- Home basements.
- Other buildings which can be upgraded to improve the fallout protection by placing earth overhead and against the walls.
- Caves, mines, and tunnels.
- Expedient fallout shelters involving digging of trenches, movement of earth, or use of materials at hand, such as tables, doors, bricks, or books.

HOW TO GET THERE

If you have a car, truck, camper or recreation vehicle, drive it to your designated host reception area, using the route shown for your community on the Route and Destination Chart below. Remember that several days should be available for evacuating all those living in the risk area. Take the time you need to prepare and pack.

An evacuation route is assigned for each community in the risk area. Routes have been designated to assure that Fitchburg-Leominster metropolitan area residents will be equally distributed among the host reception areas so that there will be adequate food and lodging for you and your family. If you use a route not assigned to you, you may find the host reception area you have chosen is filled and there is no room for accommodations for you. Follow the evacuation route to the host reception area as indicated for your city or town. Wherever possible, police officers will be on duty to advise you and direct you. Obey all instructions by law enforcement officers.

If you get caught in a traffic jam, turn off your engine, remain in your car, listen for official instructions, and be patient. Do not get out of line to find an alternate route. All routes will be crowded. If traffic is stopped for an hour or more, do not leave your car for any reason.

Be sure you have adequate gasoline when you start out. DO NOT BUY MORE GAS THAN YOU WILL NEED. Gasoline will be in short supply and will be needed to provide you with food and other essential supplies. But, if you run out of gas or have other mechanical difficulties, move your car to the side of the road out of the traffic lanes to allow traffic to continue. Service to stalled autos will be available during the evacuation period. Leave your hood up as a sign that you are stalled, and you will be assisted as soon as possible.

IF YOU HAVE NO MEANS OF TRANSPORTATION

If you have no private means of transportation, go to the nearest neighborhood between the hours of 9 a.m. and 5 p.m. Government authorities will provide transportation to move you to your host reception area.

IF YOU ARE DISABLED

If you are physically unable to get to the schools for transportation, you can make arrangements to be picked up and be transported to your host reception area. Call your local Civil Defense Office.

HOW TO DETERMINE YOUR ROUTE AND DESTINATION

A separate map for each designated route is given on the following pages. Each of these maps have been highlighted to show only the assigned highways and host reception areas.

Some of the host communities closest to the risk areas have been reserved for key workers. These people will commute to and from these host reception areas to maintain vital services during the crisis period. If you are in an essential industry and your employer has designated you a key worker, you will evacuate your family to one of the reserved host areas.

If your community appeared on the Risk Map on Page look up your community on the following Route and Destination Chart to locate your designated host community and route. Read across to find the host reception center(s) and route assigned to your city or town.

You will notice that some routes have several host reception areas listed. This is because the nearest host areas will fill up first as evacuation gets underway. Therefore, if the first host reception area is full, you will proceed on to the next area until you arrive at a location that can accommodate you. You will be notified that the host reception area is already filled either by signs along the highway or by local officials directing traffic onward. When you register at the first available host reception area, you will be assigned to a place to stay.

ROUTE AND DESTINATION CHART

COMMUNITIES AT RISK	HOST COMMUNITIES	ROUTE DESCRIPTION	ROUTE MAP/PAGE
ASHBURNHAM	KEENE, N.H.	Route 12 into Keene, N.H.	7
ASHBY	KEENE, N.H.	Route 119 to 12 into Keene, N.H.	7
BERLIN	JAFFREY, N.H.	Route 62 to 110 to 2A to 111 to 119 to 124 into Jaffrey, N.H.	8
BOLTON	JAFFREY, N.H.	Route 117 to 110 to 2A to 111 to 119 to 124 into Jaffrey, N.H.	8
CLINTON	JAFFREY, N.H.	Route 110 to 2A to 111 to 119 to 124 into Jaffrey, N.H.	8
FITCHBURG	KEENE, N.H.	Route 31 to 119 to 12 into Keene, N.H.	7
LANCASTER	KEENE, N.H.	Route 117 to 110 to 2 to 31 to 12 into Keene, N.H.	8
LEOMINSTER	KEENE, N.H.	Route 12 into Keene, N.H.	7
LUNENBURG	KEENE, N.H.	Route 2A to 31 to 119 to 12 into Keene, N.H.	7
WESTMINSTER	KEENE, N.H.	Route 2A to 6B to 32 into Keene, N.H.	7

RELOCATION ROUTE MAPS

 **HOST AREA**
 **RISK AREA**

ASHBURNHAM

Route 12 into Keene, N.H.

ASHBY

Route 119 to 12 into Keene, N.H.

FITCHBURG

Route 31 to 119 to 12 into Keene, N.H.

LEOMINSTER

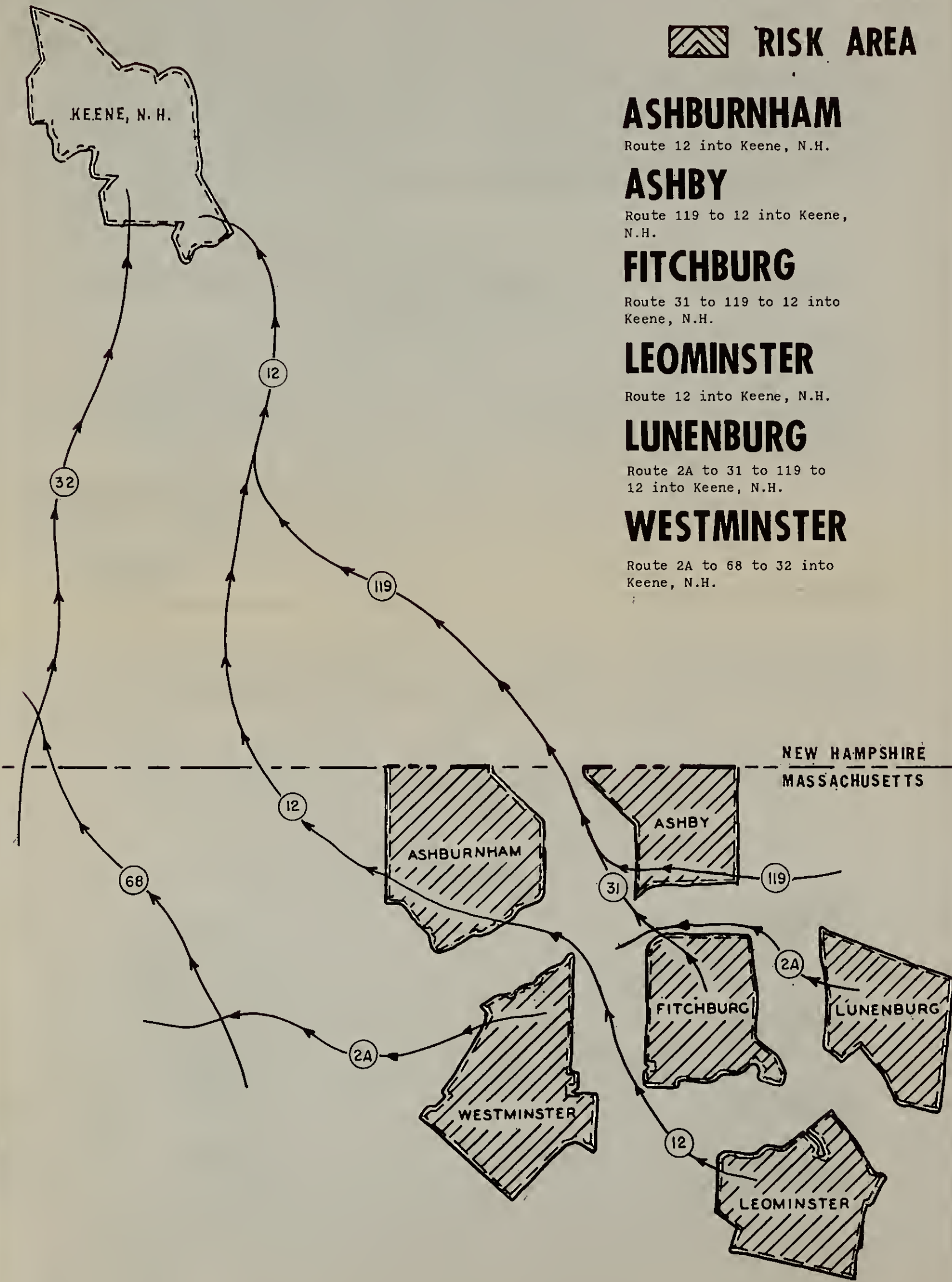
Route 12 into Keene, N.H.

LUNENBURG

Route 2A to 31 to 119 to 12 into Keene, N.H.

WESTMINSTER

Route 2A to 68 to 32 into Keene, N.H.



RELOCATION ROUTE MAPS

 **HOST AREA**
 **RISK AREA**



BERLIN

Route 62 to 110 to 2A to 111 to 119 to 124 into Jaffrey, N.H.

BOLTON

Route 117 to 110 to 2A to 111 to 119 to 124 into Jaffrey, N.H.

CLINTON

Route 110 to 2A to 111 to 119 to 124 into Jaffrey, N.H.

LANCASTER

Route 117 to 110 to 2 to 12 into Keene, N.H.

HOST AREA RESIDENTS ONLY

If you plan to use your own home for shelter-Study the following on how to improve your HOME SHELTER

If you take shelter in the best protected part of your home, you can add additional protection. Although this might be possible at the time you receive warning to take shelter, a certain amount of preplanning is necessary if satisfactory results are to be expected. **NOW IS THE TIME TO DECIDE WHAT YOU WILL DO AND HOW YOU WILL DO IT.**

If your home has a basement, pick out the corner of your basement where the ground level outside is highest. This is the safest place in the basement.

If your home does NOT have a basement, some protection can be obtained in the central part of the house, at ground level farthest away from the roof and walls.

TO MAKE THESE AREAS SAFER:

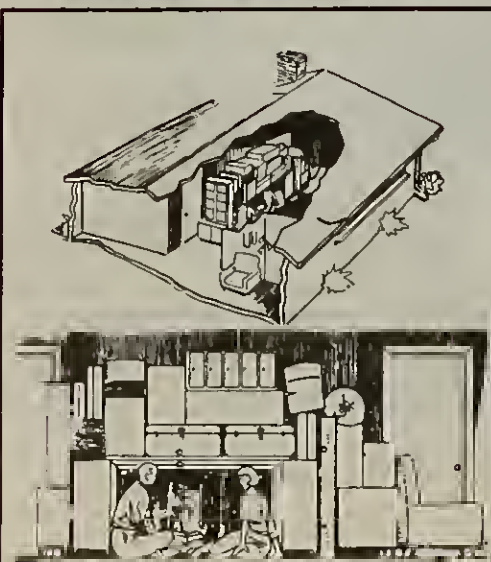
BASEMENT: Place boxes or drawers on top of a sturdy table or workbench and

fill with heavy material, such as dirt or sand or bricks. If the sides of the basement, away from the shelter area, have more than two feet of outside wall exposure, materials should also be placed around the open sides of the table. Be very careful not to overload the table to the point of collapse.

FIRST FLOOR OF HOUSE WITHOUT A BASEMENT: Place boxes or drawers on top AND around the sides of a sturdy table or workbench and fill them with heavy materials. Often a makeshift table can be made by using doors supported by cabinets or other pieces of furniture.

Further information about improving your home shelter can be found in the Civil Defense Booklet "IN TIME OF EMERGENCY" or from your local Civil Defense Chairman at your local town or city Civil Defense office.

GROUND FLOOR SHELTER



Place boxes or drawers on top and around the sides of a sturdy table or workbench and fill them with heavy materials. Often a makeshift table can be made by using doors supported by cabinets or other pieces of furniture.

WHAT TO DO NOW

(1) Study the sketches and decide which is applicable to your situation and select a shelter location.

(2) Take note of available shielding materials such as bricks, concrete blocks, sand or loose earth which could be moved quickly.

Other things could also be used as shielding material, such as:

- House doors that have been taken off their hinges (especially heavy outside doors).
- Dressers and chests (especially if the drawers are filled with sand or earth).
- Tables and bookcases.
- Large appliances (such as washers, dryers, TV and hi-fi sets).
- Trunks, boxes and cartons (if filled with earth, sand or other heavy material).
- Books, magazines, and stacks of firewood or lumber.
- Flagstones from outside walks and patios.

(3) If no shielding materials are presently available, obtain and store some in a convenient location.

(4) Take note of nonperishable foods normally kept in the home. If these are not sufficient to maintain your family for two weeks, increase the supply.

BASEMENT SHELTER



SELECT THE CORNER OF YOUR BASEMENT WHERE THE GROUND LEVEL OUTSIDE IS HIGHEST. THIS IS THE SAFEST PLACE IN THE BASEMENT.

Place boxes or drawers on top of a sturdy table or workbench and fill with heavy material, such as dirt or sand. If the sides of the basement away from the shelter area have more than two feet of outside wall exposure, materials should also be placed around the open sides of the table. Be very careful not to overload the table to the point of collapse.

CALL NOW TO SHARE YOUR BASEMENT

Jaffrey, N.H. - 532-7534

Keene, N.H. - 352-0840

This is the most serious crisis our country has ever faced. As a resident of the Host Area you can help save the lives of your neighbors from the Fitchburg-Leominster Risk Area who have left their homes to seek safety here.

WILL YOU SHARE WITH ANOTHER FAMILY?

Your neighbors who have evacuated their homes need your help, particularly those families with little children. Volunteer now to bring a family to live with you and to help improve your fallout protection. You may be saving their lives. They will either bring food with them or help you buy enough. Call the number listed for your town now!

IF YOU HAVE NO BASEMENT: Follow the instructions for expedient shelters, or as a last resort, seek fallout protection, if necessary, at the nearest public shelter.

IF YOU WORK IN THE HOST AREA: If you work in a needed industry in the Host Area (food, health service or others as designated) report to work as usual - you will be needed.

FOLLOW ALL OFFICIAL INSTRUCTIONS FOR HOST AREA RESIDENTS - KEEP YOUR RADIO AND TV ON.

These are PLANS FOR EXPEDIENT FALLOUT SHELTERS



SAVE THESE PLANS—THEY MAY SAVE YOUR LIFE

● GENERAL INFORMATION

WITHOUT PROTECTION, UNTOLD NUMBERS OF AMERICANS WOULD DIE IN THE EVENT OF A NUCLEAR ATTACK. THE EXPEDIENT SHELTERS ILLUSTRATED IN THE FOLLOWING PAGES PROVIDE PROTECTION TO OCCUPANTS FROM THE DEADLY RADIATION OF RADIOACTIVE FALLOUT GENERATED BY A NUCLEAR DETONATION—THEIR USE CAN SAVE THE LIVES OF MILLIONS OF AMERICANS.

EVEN THOUGH THE ILLUSTRATED SHELTERS ARE VERY AUSTERE, THERE ARE A NUMBER OF THINGS THAT CAN BE DONE TO IMPROVE THEIR HABITABILITY AFTER THEY HAVE BEEN BUILT. WITH THE USE OF A LITTLE INGENUITY AND EFFORT, THE SHELTERS CAN BE MADE MORE COMFORTABLE. SOME OF THE THINGS THAT CAN BE DONE ARE:

- CONSTRUCT SEATS, HAMMOCKS, OR BUNKS.
- COVER THE FLOOR WITH BOARDS OR LOGS AND DRAPE SHEETS OR MATERIAL OVER THE EARTH WALLS.
- PROVIDE SAFE, OPENABLE LIGHT.

HUMANS MUST HAVE WATER AND FOOD TO LIVE. WHEN PEOPLE ARE TO LIVE IN A SHELTER FOR A WEEK OR TWO, SUFFICIENT FOOD AND SUPPLIES MUST BE PROVIDED FOR THE OCCUPANTS. THE MINIMUM NECESSITIES ARE:

● WATER—MINIMUM REQUIREMENTS (DEPENDENT UPON TEMPERATURE—LESS IN COOL WEATHER, MORE IN WARMER) WILL BE FROM ONE QUART TO ONE GALLON PER PERSON PER DAY. STORAGE CAN BE ACCOMPLISHED BY USING DISINFECTED METAL OR PLASTIC TRASH CANS OR BOXES LINED WITH STRONG POLYETHYLENE FILM OR STRONG PLASTIC BAGS. FOR PURITY,

EIGHT DROPS (ONE TEASPOON) OF A 5-10% CHLORINE SOLUTION (e.g., CLOROX) SHOULD BE MIXED INTO EACH 5 GALLONS OF WATER.

● FOOD—ALL FOOD SHOULD REQUIRE NO REFRIGERATION AND SHOULD BE BROUGHT TO THE SHELTER IN AIRTIGHT TINS OR BOTTLES. UNDER SHELTER CONDITIONS, PEOPLE WILL REQUIRE ABOUT HALF AS MUCH FOOD AS USUAL. FOODS SHOULD HAVE A HIGH NUTRITIONAL VALUE AND A MINIMAL AMOUNT OF BULK (i.e., CANNED MEATS—FRUITS—VEGETABLES, DRIED CEREALS, HARD CANDY, ETC.)

● SANITATION—A METAL CONTAINER WITH A TIGHT-FITTING LID FOR USE AS A TOILET WITH WHICH PLASTIC BAGS CAN BE USED. TOILET PAPER, SOAP, TOWELS, SANITARY ITEMS AND A QUANTITY OF STRONG PLASTIC BAGS WILL BE NEEDED.

● MEDICAL SUPPLIES—A WELL-STOCKED FIRST-AID KIT COMPARABLE TO WHAT IS USUALLY KEPT AT HOME. TAKE SPECIAL MEDICINES FOR INFANTS AND OTHERS AND A GOOD FIRST-AID HANDBOOK.

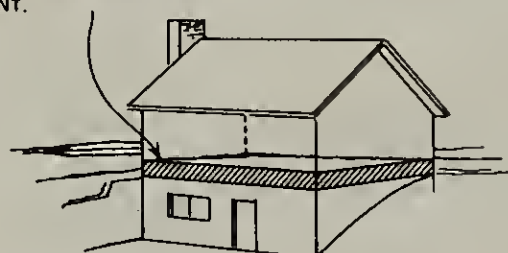
● CLOTHING AND BEDDING—SEVERAL CHANGES OF CLEAN CLOTHING, ESPECIALLY SOCKS AND UNDERCLOTHING—DEPENDENT UPON THE WEATHER, BLANKETS, PILLOWS AND SLEEPING BAGS MAY ALSO BE NEEDED.

● PORTABLE RADIO—LASTLY, BUT HARDLY LEAST IMPORTANT, A PORTABLE RADIO WITH FRESH AND EXTRA BATTERIES. RADIO STATION BROADCASTS WILL ADVISE YOU WHEN IT IS SAFE TO ABANDON THE SHELTER AND ALSO PROVIDE YOU WITH OTHER IMPORTANT EMERGENCY INFORMATION.

fallout protection for homes with basements (partially belowground)



STEP ONE — PROVIDE OVERHEAD BARRIER BY PLACING 12" OF EARTH ON ROOF OR ON FLOOR OVER BASEMENT.

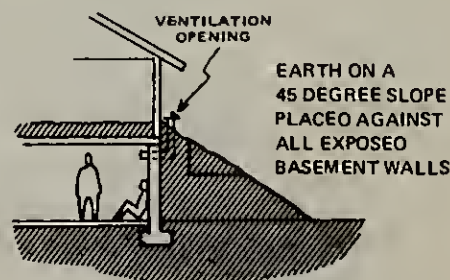
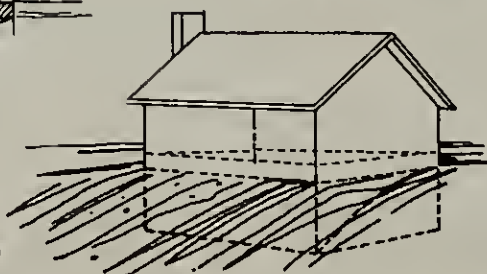


EARTH PILED AGAINST EXPOSED BSMT WALLS

HOMES WITH BASEMENTS PARTIALLY BELOWGROUND ALSO HAVE POTENTIAL FOR PROVIDING FALLOUT PROTECTION BUT NOT AS MUCH AS THOSE WITH BASEMENTS COMPLETELY BELOWGROUND.

TO IMPROVE THE FALLOUT PROTECTION IN THE BASEMENT AREA, TWO THINGS MUST BE DONE; (1) PROVIDE AN OVERHEAD BARRIER AND, (2) INCREASE THE BARRIER (THICKNESS) OF THE EXPOSED BASEMENT WALLS. THIS CAN BE ACCOMPLISHED AS SHOWN IN SKETCHES. BOTH STEPS MUST BE TAKEN TO OBTAIN THE FALLOUT PROTECTION. DOING ONLY ONE STEP IS NOT ENOUGH.

STEP TWO — IMPROVE VERTICAL BARRIER BY PLACING EARTH AGAINST ALL EXPOSED BASEMENT WALLS. COVER WINDOWS IN BASEMENT WALLS WITH WOOD TO PREVENT GLASS BREAKAGE DUE TO EARTH PRESSURE.

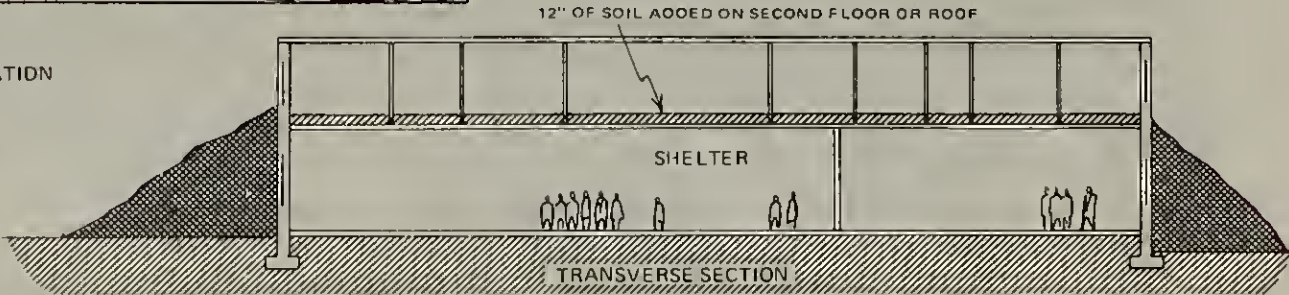


fallout protection in typical downtown row-type buildings

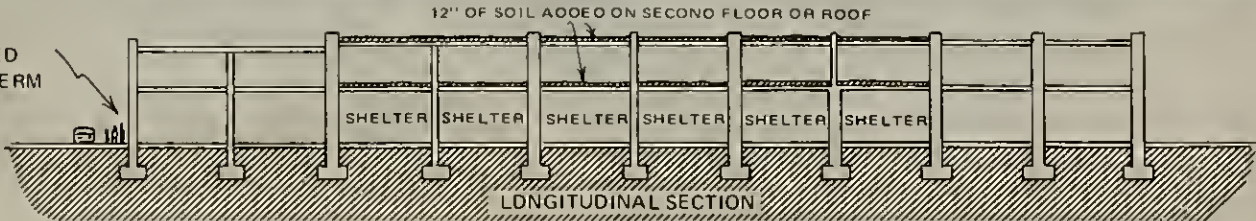


TWO-STORY BUILDINGS IN A ROW GROUPING (NO SEPARATION BETWEEN BUILDINGS) CAN HAVE THE EXISTING FALLOUT PROTECTION IMPROVED CONSIDERABLY IN THE "INTERIOR" SECTIONS BY PLACING EARTH AT THE FRONT AND REAR OF THE BUILDINGS AS WELL AS ON THE FLOOR OVER THE FIRST STORY AND/OR THE ROOF AS SHOWN IN THE SKETCHES. THE TWO BUILDINGS AT EITHER END OF THE ROW SHOULD NOT BE USED FOR SHELTER PURPOSES SINCE THEY PROVIDE SHIELDING FOR THE "INTERIOR" SECTIONS. GLASS FRONTS SHOULD BE PROTECTED FROM BREAKAGE WITH WOOD OR PLYWOOD PANELS.

NOTE:
ADDITIONAL VENTILATION
WILL BE REQUIRED.
SEE DESIGN OF AIR
VENTILATION PUMP



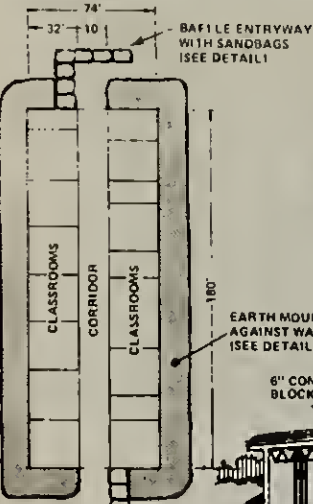
END STORES
CAN BE UPGRADED
BY PROVIDING BERM
ON END WALLS



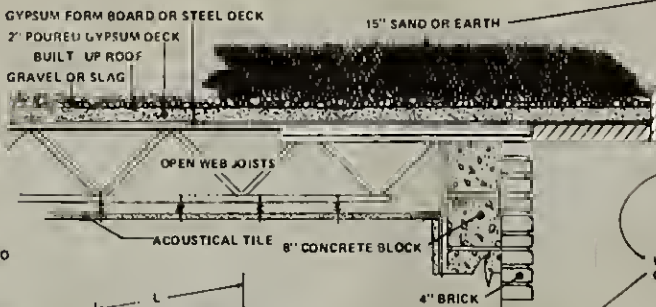
EXPEDIENT UPGRADING FALLOUT PROTECTION

typical one story elementary school without basement
- upgraded to obtain a protection factor of 40

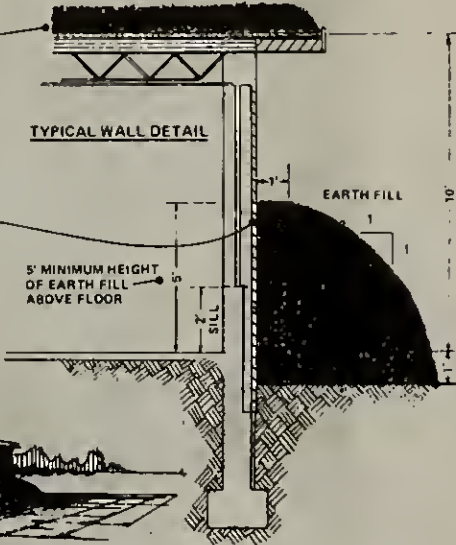
TYPICAL FLOOR PLAN



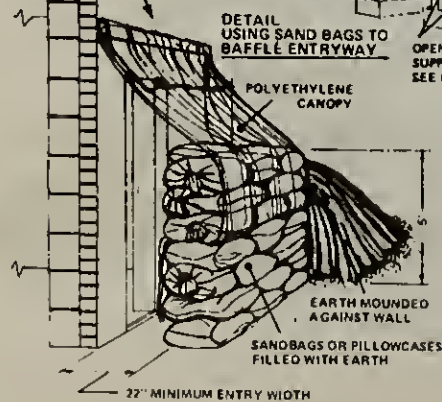
TYPICAL ROOF DETAIL



TYPICAL WALL DETAIL



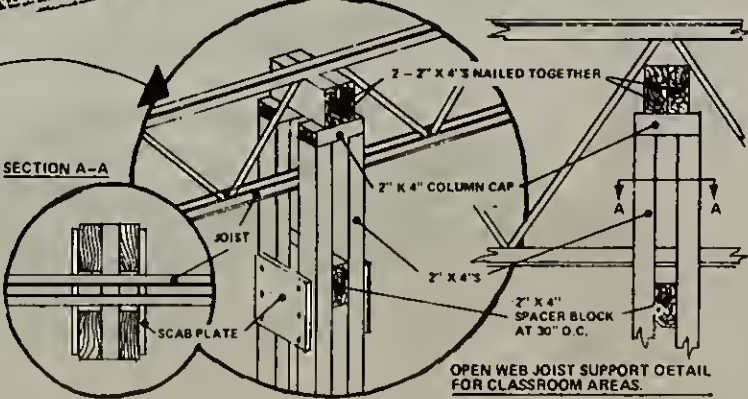
SANDBAG BAFFLE AT ENTRY WAY (SEE DETAIL BELOW)



NOTES:

1. Place earth in 5" layers on the roof until the full depth of 15" is achieved.
2. The open web joist support system shown is adequate for heights up to 14' (floor to top of joist).
3. The open web joists must be supported as shown, otherwise, the joists may prematurely fail.
4. No supports are required for the joists in the corridors.
5. The shelter capacity will be limited to one person per each 10 sq. feet of usable floor space in that area covered and surrounded by earth fill.
6. Use polyethylene sheeting or similar material to keep fallout particles out of entryway.

SECTION A-A



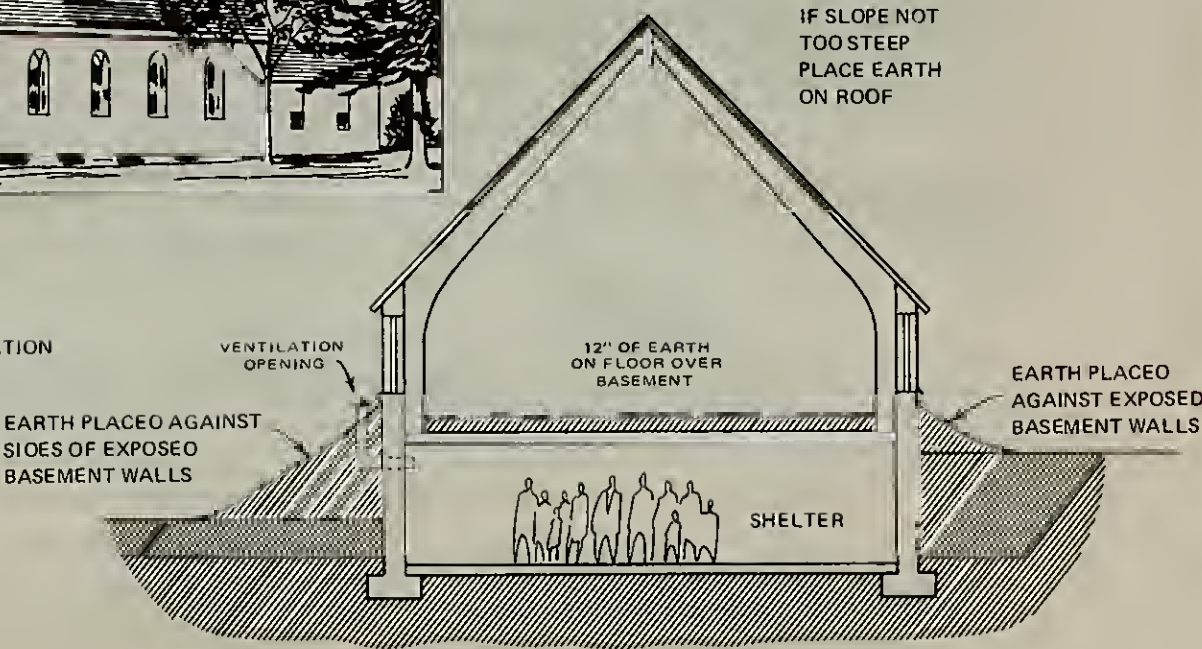
OPEN WEB JOIST SUPPORT DETAIL FOR CLASSROOM AREAS.

fallout protection in churches

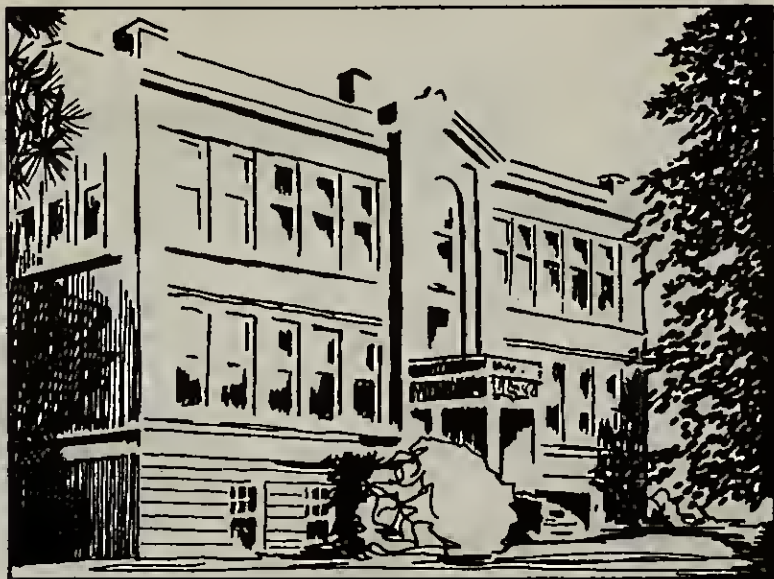


EXISTING CHURCH BUILDINGS CAN SERVE AS CONGREGATE CARE FACILITIES FOR RISK AREA EVACUEES. BEST PROTECTION CAN BE FOUND IN THOSE BUILDINGS THAT HAVE MASONRY EXTERIOR WALLS AND BASEMENTS. SHELTER IN THE BASEMENT AREAS CAN BE IMPROVED BY PLACING 12 INCHES OF EARTH ON THE FLOOR OVER THE BASEMENT AND BY MOUNDING EARTH AGAINST THE EXPOSED BASEMENT WALLS. EARTH CAN ALSO BE ADDED TO THE ROOF PROVIDED THE SLOPE IS NOT TOO STEEP.

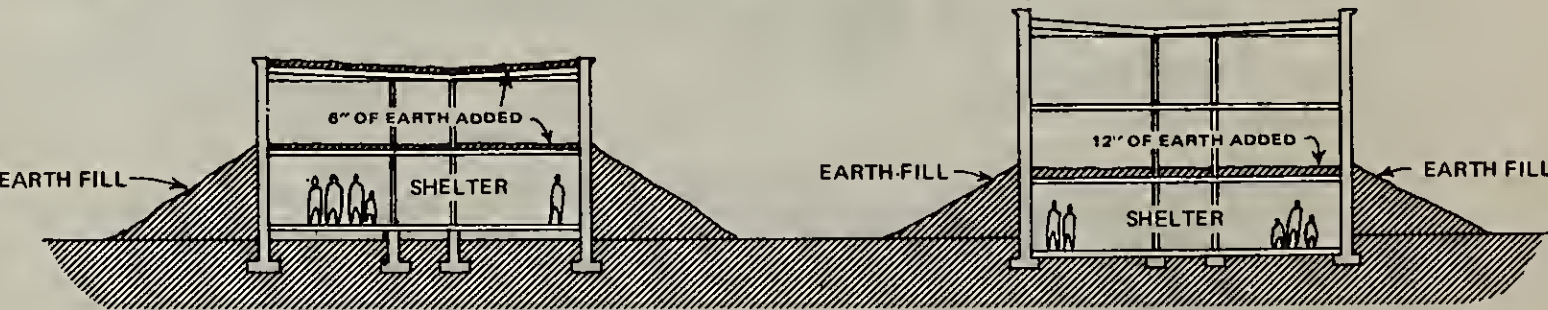
NOTE
ADDITIONAL VENTILATION
WILL BE REQUIRED.
SEE DESIGN OF AIR VENTILATION
PUMP



fallout protection in school buildings



EXISTING SCHOOL BUILDINGS CAN SERVE AS CONGREGATE CARE FACILITIES FOR RISK AREA EVACUEES. BEST FALLOUT PROTECTION CAN BE FOUND IN INTERIOR CORRIDORS AND ROOMS ON THE LOWEST FLOOR, ESPECIALLY IF THE SCHOOL HAS TWO OR MORE STORIES AND THE EXTERIOR WALLS ARE OF CONCRETE OR MASONRY CONSTRUCTION. FALLOUT PROTECTION CAN BE IMPROVED BY PROVIDING ADDITIONAL VERTICAL AND HORIZONTAL BARRIERS OF EARTH AS SHOWN IN SKETCHES. WINDOWS IN EXTERIOR WALLS THAT ARE TO BE COVERED WITH LUMBER OR PLYWOOD SHEETS SO THAT THEY WILL NOT BREAK UNDER THE EARTH FILL.



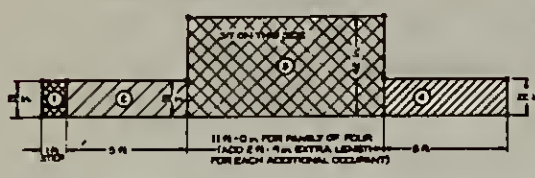
NOTE:
ADDITIONAL VENTILATION WILL BE REQUIRED SEE DESIGN OF AIR VENTILATION PUMP

EXPEDIENT FALLOUT SHELTER

LOG-COVERED TRENCH SHELTER

STEP 1

CLEAR AREA OF BRUSH AND TALL GRASS. LAYOUT SHELTER AS SHOWN BELOW.



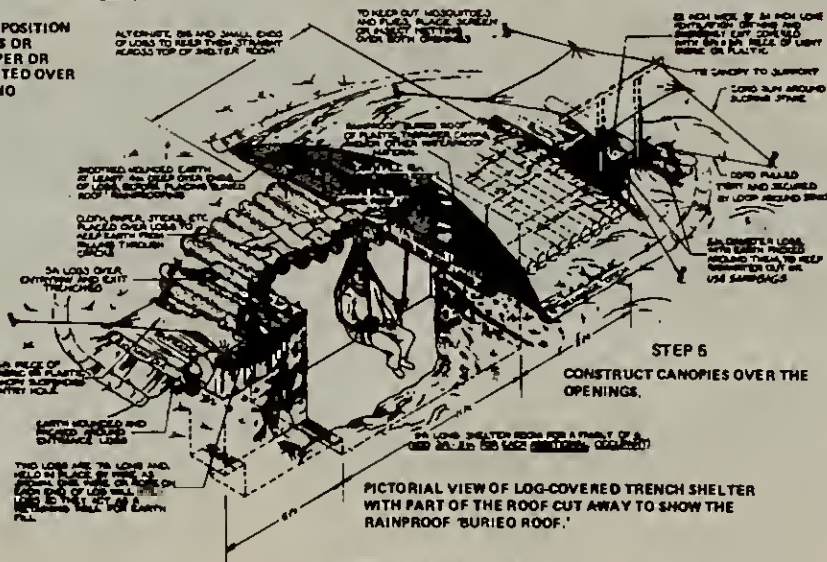
LEGEND



STEP 4

PLACE LOGS OVER TRENCH. POSITION TIES FOR BED SHEET CHAIRS OR HAMMOCKS. PLACE NEWSPAPER OR OTHER MATERIAL AS INDICATED OVER LOGS. PLACE EARTH FILL AND BURIED ROOF.

SECTION A-A



STEP 5

CONSTRUCT CANOPIES OVER THE OPENINGS.

PICTORIAL VIEW OF LOG-COVERED TRENCH SHELTER WITH PART OF THE ROOF CUT AWAY TO SHOW THE RAINPROOF 'BURIED ROOF.'

GENERAL INFORMATION

THIS SHELTER IS DESIGNED FOR AREAS WHERE THE DEPTH BELOW THE GROUND SURFACE TO HARD ROCK OR DROWN WATER IS BELOW THE BOTTOM OF THE TRENCH. ALSO, THE EARTH MUST BE SUFFICIENTLY FIRM AND STABLE SO THAT THE TRENCH SIDEWALLS WILL NOT CAVE IN. IN ADDITION, ADEQUATE SMALL TREES THAT CAN BE CUT FOR LOGS MUST BE AVAILABLE IN THE IMMEDIATE AREA. THE SHELTER (4-PERSON CAPACITY) CAN BE BUILT BY 4 PEOPLE WORKING A TOTAL OF 18 HOURS EACH. AFTER INITIAL COMPLETION, THE SHELTER CAN BE ENLARGED TO A WIDTH OF 5 FT. - 8 IN. AND DEEPENED TO 6 FT. HOWEVER, 8-FT LOGS MUST BE USED IN PLACE OF 7-FT LOGS AND THE BURIED ROOF MUST BE LARGE ENOUGH TO COVER THE WIDENED SHELTER DURING THE INITIAL CONSTRUCTION.

EXPEDIENT FALLOUT SHELTER

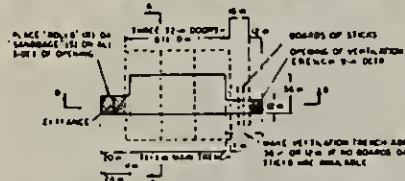
DOOR COVERED TRENCH SHELTER

GENERAL INFORMATION

THIS SHELTER IS DESIGNED FOR AREAS WHERE THERE IS A SHORTAGE OF SMALL TREES AND/OR BUILDING MATERIALS. THE DEPTH TO GROUND WATER AND ROCK MUST ALSO BE BELOW THE BOTTOM OF THE TRENCH. IN ADDITION, THE EARTH MUST BE SUFFICIENTLY FIRM AND STABLE SO THAT THE TRENCH WALLS WILL NOT COLLAPSE. THE SHELTER (3-PERSON CAPACITY) CAN BE CONSTRUCTED BY 3 PEOPLE WORKING AN APPROXIMATE TOTAL OF 12 HOURS EACH. READ AND STUDY ALL INSTRUCTIONS BEFORE BEGINNING TO BUILD.

STEP 1

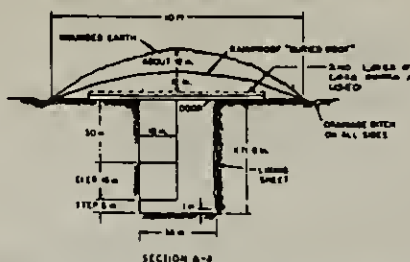
SELECT A REASONABLY LEVEL SITE. LAY OUT THE SHELTER AS ILLUSTRATED BY LAYING DOORS SIDE BY SIDE TO DETERMINE THE SHELTER LENGTH. DOOR KNOBS SHOULD BE REMOVED.



LAYOUT FOR 3-PERSON CAPACITY

STEP 2 EXCAVATE THE SHELTER TRENCH, ENTRYWAY AND VENTILATION TRENCH AS SHOWN. PILE THE EXCAVATED EARTH AT LEAST 3 FEET BEYOND THE TRENCH LIMITS SO THAT IT WILL NOT INTERFERE WITH THE LATER PLACEMENT OF DOORS OVER THE TRENCH.

STEP 3 IF THERE ARE ADEQUATE SHEETS OR FABRIC AVAILABLE, LINE THE TRENCH WALLS WITH THEM. THEN PLACE DOORS OVER THE TRENCH.



STEP 4 IN ORDER TO HOLD IN PLACE AN ADEQUATE AMOUNT OF EARTH ON TOP OF THE DOORS, CONSTRUCT EARTH 'ROLLS' AROUND THE ENTRYWAY AS SHOWN. THE 'ROLLS' WILL KEEP THE EARTH FILL IN PLACE. SEE HOW TO MAKE AN EARTH ROLL.

STEP 5 PLACE EARTH FILL AND THE WATERPROOFING MATERIAL OVER THE DOORS. PLACE SANDBAGS AS SHOWN ON THE ILLUSTRATIONS.

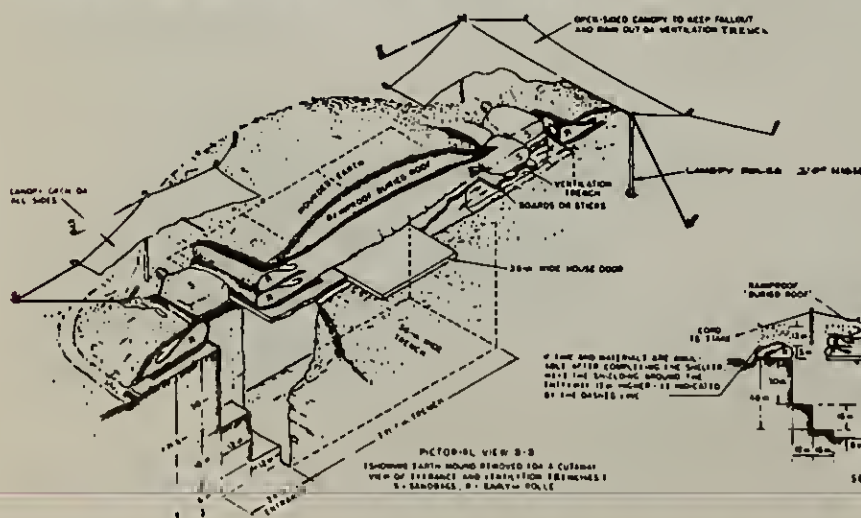
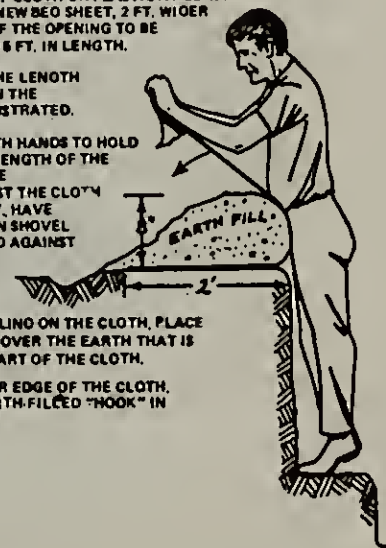
STEP 6 CONSTRUCT SHALLOW DRAINAGE DITCHES ON ALL SIDES AND PLACE CANOPIES OVER THE OPENINGS.

TOOLS AND MATERIALS

- DOORS (INTERIOR SOLID OR HOLLOW-CORE) - 1 FULL SIZE (32" MINIMUM WIDTH) FOR EACH PERSON. IF DOORS MEASURE LESS THAN 32" IN WIDTH, USE A COMBINATION OF DOORS TO PROVIDE THE MINIMUM WIDTH PER PERSON. IF DOORS ARE HOLLOW CORE-USE TWO LAYERS.
- PICK AND/OR MATTOCK.
- LONG-HANDLED SHOVELS AND SQUARE BLADED SHOVEL.
- RAINPROOFING MATERIAL - (e.g., PLASTIC SHEETING, CANVAS PLASTIC TABLE COVERS, ETC.) AT LEAST 25 SQUARE FEET PER PERSON PLUS 2 PIECES ABOUT 6 FT. BY 6 FT. FOR USE AS CANOPIES.
- ONE BEDSHEET OR THE EQUIVALENT OF 50 SQ. FT. OF CLOTH OR PLASTIC PER PERSON TO LINE TRENCH AND MAKE EARTH-FILLED ROLLS.
- TWO PILLOWCASES PER PERSON TO USE AS SANDBAGS.
- STRING OR CORO TO TIE CANOPIES AND SANDBAGS.
- KNIFE.
- SEVERAL BOARDS ABOUT 3 FEET LONG.
- MEASURING TAPE AND/OR RULER.
- WORK GLOVES FOR EACH WORKER.
- HAMMER AND HAND SAW.

HOW TO MAKE AN EARTH ROLL

- SELECT A PIECE OF CLOTH OR PLASTIC AT LEAST AS STRONG AS A NEW BED SHEET, 2 FT. WIDER THAN THE SIDE OF THE OPENING TO BE PROTECTED, AND 5 FT. IN LENGTH.
- PLACE 2 FT. OF THE LENGTH OF THE CLOTH ON THE GROUND, AS ILLUSTRATED.
- WHILE USING BOTH HANDS TO HOLD UP 3 FT. OF THE LENGTH OF THE CLOTH AND WHILE PRESSING AGAINST THE CLOTH WITH YOUR BODY, HAVE ANOTHER PERSON SHOVEL EARTH ONTO AND AGAINST THE CLOTH.
- WHILE STILL PULLING ON THE CLOTH, PLACE THE UPPER PART OVER THE EARTH THAT IS ON THE LOWER PART OF THE CLOTH.
- COVER THE UPPER EDGE OF THE CLOTH, FORMING AN EARTH-FILLED 'HOOK' IN THIS EDGE.



COMPLETE THIS QUESTIONNAIRE IN DUPLICATE BEFORE ARRIVING IN HCST AREA

Family Name _____ St. Address _____ City/Town _____ Zip _____ <hr/> <small>FOR USE BY RECEPTION OFFICIALS</small> Shelter Assignment Shelter Name _____ Address _____ # Assigned _____	DO YOU NEED TEMPORARY HOUSING? YES _____ NO _____ IF NO, WHERE WILL YOU STAY FOR THE DURATION OF THIS EMERGENCY? HOME OF FRIEND _____ HOME OF RELATIVE _____ OTHER _____ WHERE CAN YOU BE REACHED? _____ ADDRESS _____ PHONE _____ IF YES, HOW MANY PEOPLE ARE EVACUATING WITH YOU? CHILDREN _____ ADULTS _____ (PLEASE LIST BELOW)
---	--

<small>List all family members traveling together, last name first, first name, age, sex, and occupation.</small>							
Last Name	First Name	Middle	Age	M	F	Soc.Sec.#	Occupation

<small>List all other persons traveling with you. Use space for additional family members if necessary.</small>							

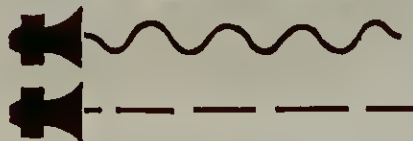
Family Name _____ St. Address _____ City/Town _____ Zip _____ <hr/> <small>FOR USE BY RECEPTION OFFICIALS</small> Shelter Assignment Shelter Name _____ Address _____ # Assigned _____	DO YOU NEED TEMPORARY HOUSING? YES _____ NO _____ IF NO, WHERE WILL YOU STAY FOR THE DURATION OF THIS EMERGENCY? HOME OF FRIEND _____ HOME OF RELATIVE _____ OTHER _____ WHERE CAN YOU BE REACHED? _____ ADDRESS _____ PHONE _____ IF YES, HOW MANY PEOPLE ARE EVACUATING WITH YOU? CHILDREN _____ ADULTS _____ (PLEASE LIST BELOW)
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WARNING

TO TAKE SHELTER



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BERLIN

Route 62 to 110 to 2A to 111 to 119 to 124 into Jaffrey, N.H.

BOLTON

Route 117 to 110 to 2A to 111 to 119 to 124 into Jaffrey, N.H.

CLINTON

Route 110 to 2A to 111 to 119 to 124 into Jaffrey, N.H.

These are preliminary instructions only. Detailed plans and instructions will be made at a later date. Until then, you should know your hosting community; That is, the community to which you may be relocated should the Crisis Relocation Option be activated.

This plan has been prepared by the Massachusetts Civil Defense Agency in accordance with a contract funded by the Federal Emergency Management Agency.

Cut out the marker designating your destination and attach it to your windshield with tape or glue.

ASHBY

Route 119 to 12 into Keene, N.H.

ASHBURNHAM

Route 12 into Keene, N.H.

FITCHBURG

Route 31 to 119 to 12 into Keene, N.H.

LANCASTER

Route 117 to 110 to 2 to 31 to 12 into Keene, N.H.

LEOMINSTER

Route 12 into Keene, N.H.

LUNENBURG

Route 2A to 31 to 119 to 12 into Keene, N.H.

WESTMINSTER

Route 2A to 68 to 32 into Keene, N.H.



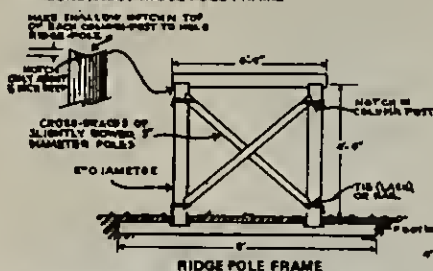
Individuals and families are responsible for maintaining personal stocks of food and water in their homes or shelters sufficient to meet their needs until other supplies are available. The stocks should be sufficient for at least 2 weeks following attack.

EXPEDIENT FALLOUT SHELTER

ABOVE - GROUND RIDGE - POLE

STEP 1

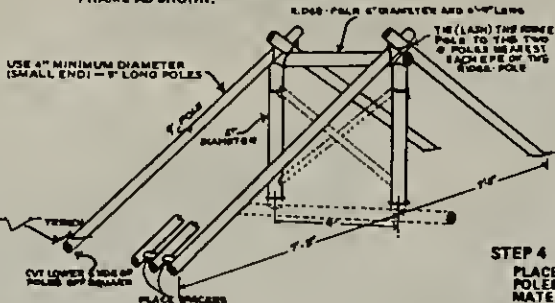
CONSTRUCT RIDGE POLE FRAME



SIDE VIEW SHOWING CROSS-BRACES OF COLUMN-POSTS (IF LARGE NAILS ARE AVAILABLE, NAILS 1/2 IN. LONGER FOR EACH POST). FOR SHELTERS WITH THREE OR MORE COLUMN-POSTS, USE ONLY ONE BRACE BETWEEN EACH PAIR OF POSTS AND CROSS-BRACES ALTERNATELY IN DIFFERENT DIRECTION.

STEP 2

DIG 4" DEEP "V" TRENCH IN EARTH AND PLACE 6" ROOF POLES IN TRENCH AND ON RIDGE-POLE FRAME AS SHOWN.

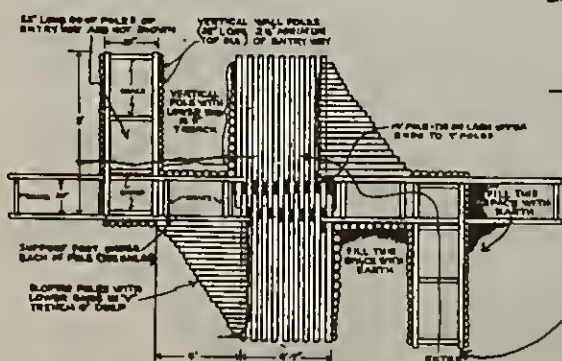


AVOID CARRYING POLES - ORAG THEM



STEP 3

CONSTRUCT ENTRYWAYS



VIEW LOOKING DOWN ON SHELTER WITH ALL POLES IN PLACE EXCEPT THE ROOF POLES OF THE TWO ENTRYWAYS.

ENTRYWAY DETAIL

ENTRYWAY DETAIL

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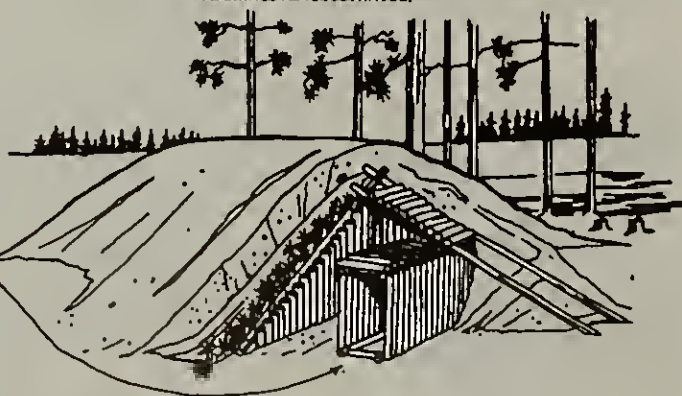
ENTRYWAY DETAIL

TOOLS AND MATERIALS

1. SAW TO CUT GREEN POLES (BOW OR CROSSCUT SAW PREFERRED), AND AN AXE.
2. SHOVEL (ONE SHOVEL FOR EACH TWO WORKERS).
3. LARGE BUCKETS, CANS, OR POTS WITH SAIL HANDLES TO CARRY EARTH.
4. KNIFE.
5. THREE DOUBLE-BED SHEETS FOR THE ILLUSTRATED PERSON SHELTER, OR AN EQUIVALENT AREA OF EQUALLY STRONG FABRIC OR PLASTIC. ONE ADDITIONAL SHEET FOR EACH ADDITIONAL 2 OCCUPANTS. IF NOT AVAILABLE, USE STICKS AND SMALL POLES PLACED ACROSS THE 4 FT. SIDE POLES AND COVER WITH GRASS OR LEAVES TO FILL IN THE SPACES BETWEEN THE POLES.
6. HAMMER AND AT LEAST 20 NAILS (3 IN. OR LONGER), OR AT LEAST 200 FT. OF ROPE OR STEEL WIRE, OR TWO ADDITIONAL BED SHEETS (OR OTHER FABRIC EQUALLY STRONG) FOR EACH PERSON TO BE SHELTERED TO MAKE INTO FOOT-WIDE STRIPS TO SERVE AS "ROPE" WHEN TWISTED.
7. AT LEAST 2 SQUARE YARDS PER PERSON OF RAIN-PROOFING MATERIAL (SHOWER CURTAINS, PLASTIC TABLE CLOTHS, PLASTIC MATRESS COVERS, ETC.).
8. GLOVES TO PREVENT INJURY AND BLISTERS TO HANDS.

STEP 4

PLACE LIMBS OR STICKS AND BEDSHEETS ACROSS ROOF POLES. PLACE EARTH FILL AND WATERPROOFING MATERIALS AS ILLUSTRATED.



SECTION THRU COMPLETED SHELTER

SECTION THRU COMPLETED SHELTER

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SECTION THRU COMPLETED SHELTER

GENERAL INFORMATION

THIS SHELTER IS DESIGNED FOR AREAS WHERE THERE IS AN ABUNDANCE OF SMALL TREES AND BELLOW ROUND SHELTERS ARE IMPRACTICAL. THE SHELTER (8-PERSON CAPACITY) CAN BE BUILT BY 5 PEOPLE WORKING A TOTAL OF 24 HOURS EACH. READ AND STUDY ALL INSTRUCTIONS BEFORE BEGINNING.

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JA

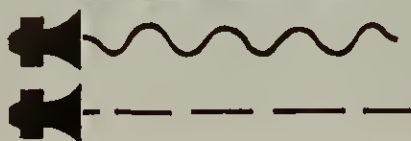
JAFFREY, N.H.

**FAMILY
FOOD
STOCKPILE
FOR
SURVIVAL**



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KE

KEENE, N.H.

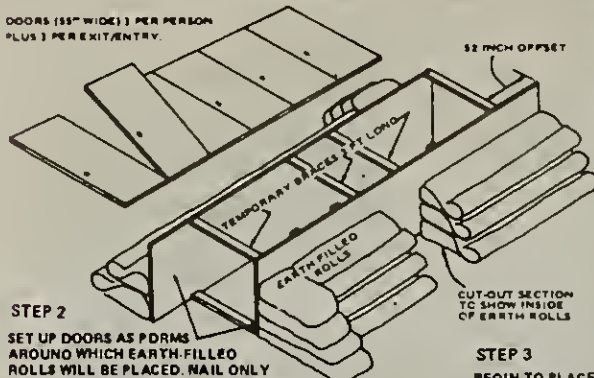
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EXPEDIENT FALLOUT SHELTER

ABOVE-GROUND DOOR-COVERED SHELTER

DOORS (55" WIDE) 1 PER PERSON PLUS 1 PER ENTRY.



STEP 2

SET UP DOORS AS FORMS AROUND WHICH EARTH-FILLED ROLLS WILL BE PLACED. NAIL ONLY TOP BRACES. NAILS MUST BE REMOVED LATER. BRACE ALL CORNERS, CENTER, TOP AND BOTTOM OF EACH DOOR.

52 INCH OFFSET

CUT-OUT SECTION TO SHOW INSIDE OF EARTH ROLLS

STEP 3

BEGIN TO PLACE EARTH-FILLED ROLLS AGAINST DOOR FORMS. TO FORM EARTH ROLLS, SEE EARTH-FILLED ROLL DETAIL BOTTOM OF PAGE.

STEP 1

SELECT A SHELTER LOCATION WHERE THERE IS LITTLE OR NO CHANCE OF RAINWATER PONDING ON THE GROUND SURFACE. STAKE OUT SHELTER, REMOVE DOOR KNOBS, ALLOW 1 DOOR FOR EACH PERSON PLUS 1 DOOR FOR EACH ENTRY/EXIT AT BOTH ENDS. LIMIT IS 8 PERSONS PER SHELTER.

STEP 5

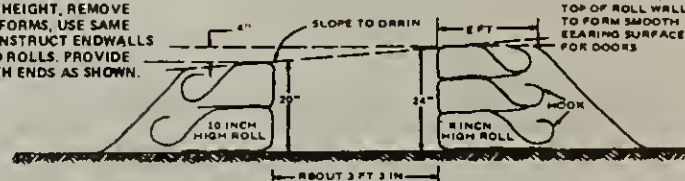
KEEP HEIGHT OF EARTH ABOUT EQUAL ON BOTH SIDEWALLS AS ROLLS ARE FORMED. AFTER SIDEWALLS HAVE REACHED PLANNED HEIGHT, REMOVE BRACES AND DOOR FORMS. USE SAME DOOR FORMS TO CONSTRUCT ENDWALLS WITH EARTH FILLED ROLLS. PROVIDE EXIT/ENTRY AT BOTH ENDS AS SHOWN.

TOOLS AND MATERIALS

1. Doors as indicated.
2. Pick or Mattock and Shovel.
3. Two Buckets or Large Cans to Carry Earth.
4. Tape Measure, Yardstick or Ruler.
5. Saw, Axe or Hatchet.
6. Hammer and at least 20 Nails - 2 1/2" long.
7. At least 4 Double Bed Sheets for Each Person to be Sheltered.
8. Pillowcases and Waterproofing Materials such as Plastic or Polyethylene.
9. Work Gloves for Each Worker.
10. Lumber for use as Temporary Braces and for Entry/Exit Frames.



SHAPE EARTH ON TOP OF ROLL WALLS TO FORM SMOOTH LEARNING SURFACE FOR DOORS



STEP 8

PLACE 16 INCHES OF EARTH ON TOP OF SHELTER. IN HOT WEATHER CONSTRUCT A SHELTER VENTILATION AIR PUMP. SEE AIR PUMP DETAILS ON LAST PAGE.

STEP 6

REMOVE DOOR FORMS FROM ENDWALLS. POSITION ROOF DOORS IN THEIR FINAL POSITION. PLACE ENTRY FRAME FOR DOOR OVER ENTRY/EXIT. PLACE WATERPROOFING MATERIAL ON DOORS.

STEP 7

DIG 14" DEEP, 36" WIDE TRENCH INSIDE SHELTER. EARTH CAN BE PLACED DIRECTLY ONTO ROOF DOORS. TRENCH CAN BE MADE UP TO 3 FEET DEEP IF CONDITIONS PERMIT.

POLE WATERPROOFING MATERIAL UNDER HIGHER EDGE OF DOOR TO KEEP IT FROM SLIPPING.

STEP 4

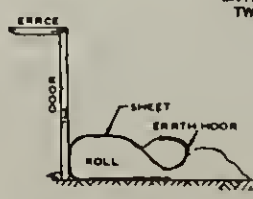
MOUND EARTH AGAINST THE EARTH-FILLED ROLLS AS SHOWN. CONTINUE PLACING EARTH AND SHEETS TO FORM EARTH-FILLED ROLLS. CONTINUE PLACING EARTH AND SHEETS TO FORM EARTH-FILLED ROLLS.

NOTE: IF TRENCHING IS IMPRACTICAL HEIGHTEN WALLS BY USING ADDITIONAL EARTH ROLLS.

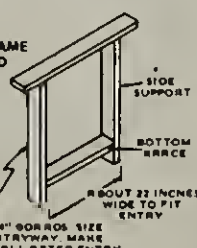
ENTRY/EXIT FRAME TWO REQUIRED



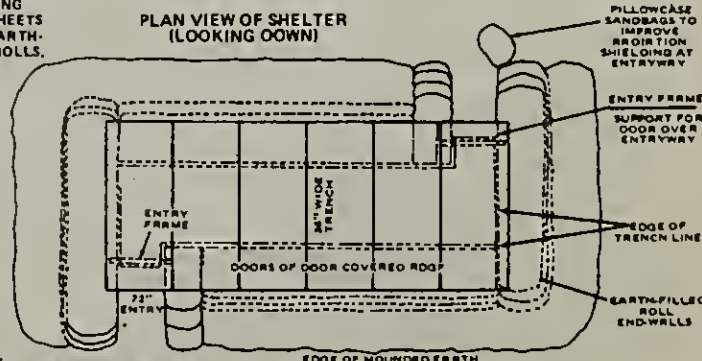
EARTH-FILLED ROLL DETAIL



USE 2" X 4" BORERS SIZE TO FIT ENTRYWAY. MAKE AND INSTALL AFTER ENTRY IS COMPLETED



PLAN VIEW OF SHELTER (LOOKING DOWN)



GENERAL INFORMATION

THE ABOVE-GROUND DOOR-COVERED SHELTER IS DESIGNED FOR AREAS WHERE BELOW-GROUND SHELTERS ARE IMPRACTICAL BECAUSE THE GROUNDWATER TABLE OR BEDROCK IS CLOSE TO THE GROUND SURFACE. THIS SHELTER CAN BE BUILT BY FOUR PERSONS WORKING A TOTAL OF 12 HOURS EACH.

READ AND STUDY ALL INSTRUCTIONS BEFORE STARTING TO BUILD. IF DOOR WIDTHS MEASURE LESS THAN 32 INCHES, USE A COMBINATION OF DOORS TO PROVIDE A MINIMUM OF 32 INCHES OF DOOR WIDTH PER PERSON.

1. PLACE 2 FT OF SHEET ON GROUND AND TEMPORARILY DRAPE REMAINDER OF SHEET ON DOOR.
2. PLACE EARTH ON SHEET - SHAPE AS SHOWN.
3. FOLD SHEET OVER SHAPED EARTH.
4. PLACE EARTH ONTO SHEET AT NARROW TRENCH.
5. FOLD SHEET TO FORM EARTH HOOK. HOOK WILL ANCHOR SHEET.
6. REPEAT TO FORM NEXT EARTH-FILLED ROLL.